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AN EVIDENCED-BASED APPROACH TO SCHOOL FINANCE ADEQUACY IN WASHINGTON

Prepared for the
K-12 Advisory Committee
of
WASHINGTON LEARNS

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Included in this Excerpt

Full draft report can be found on the Washington Learns website:
http://www.washingtonlearns.wa.gov/

Introduction

Washington is at a school finance crossroad. Historically, the state has focused on school finance equity and a school finance structure designed in the 1970s. Given the Essential Academic Learning Requirements the state has decided all students should be taught, and the performance standards to which all students should achieve, as measured by the Washington Assessments of Student Learning, as well as the student achievement pressures from the federal No Child Left Behind Act, however, it is time to focus on school finance adequacy – to identify what it would take programmatically to attain those standards and fully fund those programs. If the goal is even more ambitious – to have all students acquire the knowledge, skills and expertise needed to attend college or take a job in the global economy – the design of an outcomes oriented finance system is even more important. Such results are the prime objectives of a school finance adequacy study, or in the Washington parlance, perhaps the composition and costs of a newly defined basic education program. The resulting cost figure will set a target for what the state should fund for K-12 education.

Washington cannot be satisfied with improving performance only marginally; such modest gains will not allow the economic vitality needed for the state to continue to prosper, to provide the workers needed for the state's growing knowledge-based economy, or for all individuals to enjoy a good life. Washington's education system – like those in virtually all states – needs to double and triple current performance so that in the short term, 60 percent of students achieve at or above proficiency, and in the longer term 90 percent or more of students achieve at that level. This task is daunting and will require a dramatically different approach to teaching and learning within schools as well as to Washington's public school funding.

This program and finance study provides a blueprint, though not all the program specifics, for how to do both. Schools must redesign the way they operate in order to take advantage of the evidence on educational effectiveness presented in this report. All current and any new dollars will need to be reallocated toward these evidence-based approaches if these ambitious education goals are to be accomplished.

Costs Included in the Study

We note at the beginning that the educational costs included in this study address mainly instructional issues. We will focus on effective strategies, programs and services, and their costs, related to expenditures for the instructional, instructional support, pupil support and site administration functions. We also redesign central office staffing and the operations and maintenance function. We do not address food services, which are assumed to operate on a self-supporting basis. Transportation costs need to be handled separately as transportation costs depend on factors different from programs; transportation is being addressed by a separate study.

This report is focused on answering the following key questions:

1. What are the high impact educational programs and strategies that will allow every school to provide each Washington student with the opportunity to learn to or above proficiency on state standards as measured by the Washington's Assessment of Student

Learning, with proficiency standards calibrated over time to those of the NAEP, or even the performance of students in other countries?
2. How much do those strategies cost, and what is the size of the gap, if any, between current resource levels and adequate levels needed to implement all evidence-based strategies?
3. What is the program and fiscal implementation strategy? First, how can current dollars be used more effectively both through finding inefficiencies and reallocating current resources? Second, how can any new dollars be targeted only to evidence-based practices that produce more results in student achievement?

In our cost analyses, we assume all dollars and programs currently in the system would be sunsetted, and that extant dollars and any new dollars would be used for the general strategies identified in the report.[1] In that sense, we are assuming complete reallocation of current resources to the most effective and evidence-based educational strategies at the classroom, school and district level – the general strategies discussed in this report. Although the state might not want to mandate these actions, our funding recommendations will make these assumptions so that we will not simply propose adding new dollars on top of current dollars, but propose a complete new use of all dollars – first those currently in the system and then any additional dollars if that is the finding of the costing analysis.

We also note that we will be proposing general but not specific programs. Thus, we will propose appropriate class sizes for core and specialist classes, but we will not propose specific reading or math, or art or music programs. Likewise, we will propose a set of resources needed to deploy effective professional development programs, but we will not propose specific professional development programs. The professional development resources recommended are adequate for all major professional development needs, including instructional improvement as well as cultural and ethnic awareness, given the changing demographics of Washington's students. Further, we will recommend tutoring, extended day and summer school resources for giving more instructional time and help to students struggling to learn to standards, but we will not suggest specific tutoring, extended day or summer school programs. Moreover, these resources to extend student learning time also could be deployed in more "year-round" school schedules that have shorter break times than a full summer. Thus, our focused but still general resource recommendations will need to be blended with other more specific programmatic recommendations in order for districts and states to use the resources we propose in the most effective ways.

The Evidence- Based Approach to Adequacy

This consultant report represents a school finance adequacy study. Since 1990, the school finance community has developed a number of alternative methods for determining school finance adequacy. These are summarized in Odden (2003), an article that identifies strengths and weaknesses of each approach. For the past several years, we have used the Evidence-Based approach and that is the approach used in this report.[2]

[1] Of course, successful programs can be reinstated, but we start with a zero base in our program and fiscal analyses.
[2] Pursuant to the RFP, we also conducted a successful district approach to school finance adequacy.

The Evidence-Based approach identifies a set of school-level components that are required to deliver a comprehensive and high-quality instructional program, i.e., which could be termed an updated basic education program in Washington, within a school and the evidence on their effectiveness, and then determines an adequate expenditure level by placing a price (e.g. an appropriate salary level for personnel) on each component and aggregating the components to a total cost. More explicitly, this approach is based on evidence from three sources:

1. Research with randomized assignment to the treatment (the "gold standard" of evidence)
2. Research with other types of controls or statistical procedures that can help separate the impact of a treatment
3. Best practices either as codified in a comprehensive school design (e.g., Stringfield, Ross & Smith, 1996) or from studies of impact at the local district or school level.

The Evidence-Based approach to defining and costing school finance adequacy defers to evidence on the strategies needed to meet pre-determined performance goals much more strongly than on the professional judgment of educators, though professional educator input is solicited.

The following sections of the report take this approach, with which the lead authors for this study, Professor Allan Odden at the University of Wisconsin-Madison and his colleague Professor Lawrence O. Picus at the University of Southern California, have been associated for several years (Odden, Picus, Fermanich & Goetz, 2004, Odden, Picus & Fermanich, 2003; Picus, Odden & Fermanich, 2003; Odden, 2000). It describes how this approach would be used to identify the core educational resource needs of prototypical elementary, middle and high schools in Washington – resources that would constitute the adequate program needed by schools to educate their students to state performance standards. It concludes with Table 1 that identifies an initial set of adequate resources for Washington elementary, middle and high schools. Appendix A summarizes proposals from professional judgment panels in a few other selected states, which are sometimes referenced in the report.

Before proceeding, we should note that we have proposed a definition of education adequacy, which also could be a new definition of the Basic Education Program, and that definition serves as a basis for identifying the resources required for adequate funding. The definition of educational adequacy is:

a. The expectations included in Washington's Essential Academic Learning Requirements (EALRs), which define what all Washington's students are to be taught.

b. The standards included in the state's testing system, the Washington Assessment of Student Learning (WASL), which include a definition of what would be considered a proficient score for each test. The goal is to have all, or all but the most severely disabled, students perform at or above proficiency on these tests (with the proficiency standard calibrated overtime to those of the NAEP of the knowledge required for the emerging, knowledge-based global economy), and to boost the percentage of those performing at the advanced levels – particularly in mathematics and science.

c. The standards implied by the state's evolving accountability system, and the federal No Child Left Behind law, which further require improvement for students at all levels in the achievement range, for all income levels, for all ethnicities, and which also aspire to enhance the learning of the top scoring students as well.

d. Sufficient funding to provide the resources identified in the resource matrix contained in Table 1 of this report.

In short, the report is focused on preparing Washington students so they are:

- Ready for college
- Ready for work in the global economy
- Ready for citizenship.

Six Core Strategies

Full implementation of this definition of an adequate education program with the proposed resources will require most schools to rethink, if not restructure, their entire educational program and reallocate all current and any new resources to a restructured and more effective educational program. Such a system also will work best if it is accompanied by a clear accountability and monitoring program. Our recommendations are premised on six core strategies that Washington needs to:

- Recalibrate goals for student learning. In order to have Washington's students prepared for college, work in the emerging global economy and citizenship, the medium term goal is to double student academic achievement, as measured by the rigorous National Assessment of Educational Progress (NAEP) and the state's testing system. The long term goal is to have at least 90% of students – including low income, students of color, ELL and students with disabilities – achieve to proficiency standards.

    - Our assumption is that work in the global, knowledge-based economy requires virtually the same skills and expertise to enter the work force after high school or go to college.

    - We also assume that in the 21st century, career-tech education is info-tech, nano-tech, bio-tech, health-tech and construction-tech if it is to bolster Washington's economic growth.

- Re-engineer schools to have them deploy more powerful instructional strategies and use resources more productively. Schools need to change the curriculum they use, how they are organized and how they use resources along the lines outlined in the next sections of this report. One core idea is that all students should take a college preparatory curriculum of 4 years of English, 4 years of history and at least 3 years of mathematics and science.

- Redesign teacher development so that all teachers acquire the instructional expertise to educate all students to proficiency and the ability to think, understand, problem solve and

communicate. This means using the extensive professional development resources that are included in the funding model in the most effective ways.

- Reinforce achievement for struggling students by providing a series of extended learning opportunities, such as some combination of 1-1, 1-3 and small group tutoring, extended-day and summer school programs, so all students have an equal opportunity to achieve to high standards. The objective is to hold performance standards high and vary instructional time so all students can achieve to rigorous standards. In this process, schools also will close the achievement gap.

- Retool schools' technology so they can tap the educating potential of the Internet.

- Restructure teacher compensation so the state begins to move away from paying teachers on the basis of just years of experience and education units, to a system that pays teachers individually for what they know and can do (a knowledge and skills-based pay system), and collectively a bonus for improving student learning.

To implement these six core strategies, we have a vision of a much more effective school. This vision is not just an academic artifact. Before outlining the new school vision, which incorporates all the elements of the evidence-based funding model outlined in the next sections, we provide several examples of how this vision looks in several places around the country and in Washington that have doubled student learning.

The Madison, Wisconsin Story

Madison, Wisconsin is a medium-sized urban district in south Central Wisconsin. For years, it was a relatively homogeneous community with good schools and high levels of student achievement. In the late 1980s and early 1990s, its demographics began to change. By the mid-1990s it was moving past a 25 percent low income and minority enrollment towards the 50 percent level. And as its diversity grew, so did the achievement gap between its middle class white students and the rising numbers of low income and minority, particularly, African-American students. A mid-1990s analysis of reading achievement showed that only about 30 percent of low income and African-American students met the state's third-grade reading benchmarks, and even worse, almost all such students who scored below the basic level in reading at grade 3 were below basic in grade 8 as well. In other words, if students did not read at or above the basic level by grade 3, they almost never caught up.

Something had to be done. So the district conducted an equity, diversity and adequacy "audit" of the district. As a result it set three overarching goals for the district:

- Produce all students reading at or above proficiency by the end of third grade.
- Have all students take and pass algebra by the end of grade 9.
- Have all students take and pass geometry by the end of grade 10.

These goals have guided the district for nearly the past decade. These three goals were considered as "*gateway*" goals; if students could not meet them, they would have great difficulty

exiting high school, in the words of Washington, ready for college, ready for work in the global market or ready for citizenship.

The reading goal made it clear that there was an urgent need to bolster the district's elementary reading program, actually its "non-reading" program because at that time the reading program varied by school, grade and classroom. And it was not working for its new students.

Using a bottom up approach that mirrored the Madison culture for any change, the system created a new, district-wide, research-based reading program over the next several years. This new program included an extensive set of formative assessments so each teacher was aware of what every student knew and did not know in reading. The results were then used to create focused reading instruction, tailored to the needs of each class and each student. Wanting to make sure every teacher in grades K-3 had the skills to implement this complex reading program, the district expanded professional development, ultimately providing professional development in the new reading program for all its elementary teachers, including an intensive summer induction program for all new teachers. It ultimately provided professional development in the new reading program to all its elementary teachers and established an intensive summer induction program for all new teachers. In addition, it provided instructional coaches for all of its highest poverty schools to help all teachers incorporate the new reading strategies into their ongoing instructional practice, reduced the K-3 classrooms in those schools to 15 students, and also provided teacher tutors to help children still struggling after experiencing the regular reading program. All these new resources – smaller class sizes, professional development, instructional coaches and teacher tutors – were supported by reallocating the resources they had been providing to their elementary schools – no new local funds were needed.[3]

The result was a doubling over five years the percentage of low income and African-American students achieving or exceeding the proficiency level on the state's reading test. The district also reduced to almost zero the number of students scoring below Basic in grade 3. The district was successful because:

- They **recalibrated goals** to double the performance of low income and minority students
- They **reengineered schools** with complete instructional change in the reading program and with class sizes of 15 in grades K-3
- They **redesigned teacher development** with extensive summer training followed by provision of instructional coaches in schools to help teachers successfully implement new instructional approaches to reading
- They **reinforced struggling students** with extended learning opportunities that included teacher tutors and summer school.

But the district did not have sufficient funds to provide coaches and tutors in all schools. Consequently, when it began its efforts to enhance the mathematics program, it simply could not

[3] Since Madison spends about $12,000 per child, much higher than all Washington districts, this level of resource reallocation is probably not possible in many, if any, Washington school districts.

fund the effort because it had no more resources to reallocate for mathematics coaches or mathematics tutors.

It should be noted, however, that because of the rising ethnic and cultural diversity of the district, it also launched a five year effort to raise the awareness and sensitivity of all district employees to these new demographic realities, and this consciousness raising continues today.

Washington's Reading First Initiative

Washington State's Reading First initiative, which focuses on students in kindergarten through grade 3, shares many similarities with the Madison reading initiative – including the use of focused resources – and has produced even more impressive results. The goal of the program is to produce students who read at or above grade level by the end of third grade. The core of the Reading First process is a scientific research-based reading program; schools are able to select one program from a menu of programs that have been documented through rigorous research, to produce reading proficiency. We note that any educational initiative that is designed to impact student academic achievement, reflected in scores on the state tests, must begin as a curriculum and instructional initiative; and that helps explain the many Washington initiatives embedded in the various content areas, focusing heavily on reading and mathematics, the content areas that are the foundation of every other content discipline. Designers of the federal Reading First program claim – validly from our perspective – that the country has sufficient professional knowledge to insure that all students exit third grade with proficiency in reading in English.

The Washington Reading First process takes a systemic, district approach. The K-3 comprehensive reading programs used by Reading First Schools align with the state's standards in reading, and provide detailed instructional advice to all staff involved in daily reading instruction including teachers and paraprofessionals. At the heart of the Reading First process is the development of a comprehensive assessment system. This system includes screening, progress monitoring, diagnostic, and program assessments. Program or "formative" assessments are commonly linked to the state test, but provide more detailed data to teachers on the exact knowledge, skills and understandings of students in reading at each different grade level. These assessments are then used as guides by teachers who identify specific reading objectives and deploy explicit instructional strategies that are linked both to the state and district reading standards and to the status of the individual teachers' students reading proficiency levels. This intense classroom focus is then bolstered by a district level reading coordinator, reading coaches in all Reading First elementary schools, and reinforced with two tiers of intensive intervention for struggling students. These interventions include very small group tutoring provided by teacher tutors or trained and supervised para-professionals.

In K-3 Reading First classrooms, students receive 90 minutes of uninterrupted minutes of reading instruction daily. This day-to-day instructional treatment, of course, is the core of the program. And if implemented well, it should educate the bulk of K-3 students – including low income and minority students – to reading proficiency in English by the end of third grade. To insure that all staff providing reading instruction and interventions (including teachers and paraprofessionals) have the instructional expertise and capacity to deliver high- powered reading instruction, Reading First includes intensive professional development each year for its teachers.

There are several days of intensive professional development during the summer, and ongoing professional development each month during the school year for district coordinators, principals, reading coaches, teachers and paraprofessionals. Districts and school use their Reading First grant funds to pay for local professional development in reading and for their staffs to attend state-level training events. The Reading First program provides the funds for the trainers for state-level professional development activities. Further, and very important, Reading First requires at least one reading coach in every school; the role of the coach is to work with teachers in grades K-3 to help them implement all the new instructional strategies into their daily teaching practice.

Importantly, Reading First recognizes that no matter how powerful the K-3 core reading instruction program, some students will need extra help to achieve to the proficiency level. Thus, Reading First also provides funds for two tiers of intervention – 30 minutes of small group (3-5 students) tutoring for students with mild struggles, and an additional 30 minutes of small group tutoring for students with more complex difficulties. Most of the instructors for these extra help interventions are licensed teachers, but in some cases they are specially selected, trained and supervised para-professionals.

The program has produced remarkable results, more than doubling the percentage of students scoring at or above proficiency. It should be noted that most Washington Reading First schools have large numbers of students from low income and minority backgrounds, and present the toughest educational challenges. Producing performance gains in these schools, which have had the lowest levels of student academic achievement, is critical if Washington is to produce students capable of working in the knowledge- and high-skilled economy of the 21st century. The following table summarizes the outcomes:

Student Performance Outcomes in Washington's 51 Reading First Elementary Schools

Performance Standard	Percent of students at this level in 1997	Percent of students at this level in 2003	Percent of students at this level in 2005
Below Basic	26	17	11
Basic	43	42	25
Proficient, Met Standard	19	32	45
Exceeded Proficiency Standard	6	8	18

Washington Reading First was introduced to these schools in 2003. The numbers show that although the schools had been making some progress over the six years from 1997 to 2003, the Reading First intervention dramatically accelerated the progress. The percent of students scoring below the basic level declined by 9 points (1.5 points a year) over the six years from 1997 to 2003, but then declined by 6 points (3 points per year) in the first two years of Reading First, or *double* the previous trend. Similarly although the percent scoring at the proficient level rose from 19 to 32 percent in the six years from 1997 to 2003 (13 points or about 2 points a year), that percent accelerated after 2003, rising by the same total amount (13 points) but at three

times the annual rate (6 points a year), compared to the previous trend. And finally, the percent scoring at or above proficient or standard rose by 15 points from 25 to 40 percent from 1997 to 2003, but then jumped by 23 points to 63 percent in just two years from 2003 to 2005. The data showed that gains similar to these were made by all minority sub-groups in the Reading First schools – African Americans, Hispanics, and Native Americans. These significant results – on the state testing system – show that Reading First is an outcome oriented strategy that weaves together a set of resources to produce student achievement results.

But as just noted, these impressive student achievement results required resources and a strategic orientation on the part of the districts.

- They **recalibrated goals** to get all students up to reading proficiency by the end of third grade

- They **reengineered schools** anchored by a completely new, restructured reading system that reflected national and international evidence on how to teach reading effectively

- They **redesigned teacher development** that provided extensive training, including resources for up to ten days per year of professional development for staff providing reading instruction and intervention (including teachers and paraprofessionals), funds for the trainers, instructional/reading coaches in every school

- They **reinforced learning opportunities for struggling** students that included small group and more individualized tutoring of students who struggled more and needed extra help meet state reading standards.

Without all the additional resources, most provided by the Reading First grants, performance might have continued at a modest pace but not at the accelerated pace Washington needed.

Similar efforts will be needed to improve student achievement in the other core content areas – mathematics, science, history and world language – and in middle and high schools. And such efforts will require similar targeted resources, nearly all of which are included in the proposed Washington funding model.

Rosalia

Rosalia School District, a small rural school district with one K-12 school, serves approximately 240 students. The eastern Washington school resides in a small town of less than 1,000 people with a largely agricultural economic base. The highly mobile (30 percent) student population consists of mostly (92 percent) white students, approximately half of whom receive free or reduced-price lunch. In the past five years, the students and school staff have undertaken an extremely successful campaign to improve teaching and learning. This short vignette, based on interviews with the superintendent and principal, conveys the instructional vision that drove the increase in student performance, and identifies the strategies instrumental in reaching their sustained results.

Before delving into the successful strategies that this school district employed, we highlight performance results their strategies produced, which provides the big picture of where they started and how far they traveled. From 2001 to 2005, reading scores on the Washington Assessment of Student Learning (WASL) increased from 68 to 100 percent of fourth grade students meeting the standard, and from 32 to 94 percent of seventh grade students meeting the standard. From 2003 to 2005, tenth grade students reading scores on the WASL increased from 63 to 100 percent meeting the standards. Writing scores on the WASL also increased from 2001 to 2005 with fourth grade scores starting at 39 percent and increasing to 70 percent, seventh grade scores rising from 55 to 67 percent, and tenth grade scores growing from 58 to 79 percent of students meeting the standard. Similarly, over the same five year period, math scores on the WASL increased from 43 to 85 percent in fourth grade, 36 to 67 percent in seventh grade, and 58 to 74 percent meeting the standard in tenth grade.

Cultural Change Supported by Instructional Leadership**.** For the past five years, cultural change has driven Rosalia staff and students from a norm of mediocrity to an expectation of excellence. Staff developed a shared mission and vision for themselves and their students that culminated in a living document in which they pledged to:

PARTNER with parents
PROVIDE a safe learning environment
EDUCATE all students, and
EMPOWER them to make correct choices.

This change process was ignited and supported by administrator leaders who knew the research on what works, envisioned how to create change, sold the process, acted as change agents, and helped staff get past their resistance. During the first of the five years, they made the mistake of trying to skip the step of getting people on board and implementing change through administrative direction. They then realized that the staff needed to build ownership together and have more of a role in directing the process. A lot of the success is due to teachers' increased leadership role, professional development, and common focus backed by hard work. As the administration took less of a lead, the teachers were given more and more autonomy, and built up their own leadership skills towards decentralized leadership. The improvement process began with a centrally-initiated vision, yet has been implemented from the bottom-up.

Relationships among colleagues and with students became a priority and resulted in a culture of teacher collaboration and connections with students. Staff carved out an hour and half during two days per month for collaborative planning when they discuss how to do better in content strands where they are weak. Then they focused collaboration on improving instruction. Informal evidence of this change is that staff room conversations moved away from non-instructional complaints about students into instructional brainstorming on solutions for improving student learning. For example, a cultural expectation to increase instructional time permeates the school, and when some teachers consistently finished teaching 10 minutes early, others helped them get better at using every minute of instructional time. They could have been weaker in another culture, but at this school they have to try.

Teachers have taken more responsibility for student learning. Teachers tell students they have to come in for help, which is a cultural shift. Secondary teachers are now teaching students instead of just content and kids respond to this caring. They greet every student coming into classrooms, wanting every student to be touched everyday. Students were surprised at first, but noticed when a teacher missed connecting with them. The fights, weapons, and drugs that were previously a problem in the school have ceased and now students are excelling not only in academics but in extra curricular activities such as band and FFA in which they have won competitions. Rosalia staff created a more academic feel for the students. For example, they mirror a college schedule in the secondary grades with semester finals only two per day and let the students come in late.

Focus on Improving Teaching and Learning**.** Rosalia school staff committed themselves to implement best practice and research-based strategies. They started by looking at WASL scores, established a baseline and used it as a reference point to grow from. For the first few years, they focused on broad areas, and now they analyze the data by strands (student, class, etc.). From the test score data, they set goals in math, reading and writing. Collaboration time is focused on these goals, and enhanced with in-house experts.

They also started selecting curriculum that matched the state content standards, the Essential Academic Learning Requirements (EALRs), and the corresponding Grade Level Expectations (GLEs). Teachers started talking about what they were each teaching, and they started the curriculum mapping process. They wanted to make sure they were teaching with purpose. Essentially, they need to know that students can read and write well, and be able to think analytically. They pulled resources from other districts.

For the first three to four years, the content focus of the improvement effort was in reading in the elementary and then reading in the middle school. After accepting the concept that every teacher is a reading teacher, they incorporated writing and are starting to consider every teacher a writing teacher. The last two years, there has been a strong focus on math with an emphasis on teacher inservice and training. Most students (approximately 90 percent) take algebra by the end of *eighth grade*, and about 30 percent of students take calculus in twelfth grade. Now they are concentrating on improving science instruction.

They also realized that they could make a lot more headway if they intervened earlier in their students' lives. They have had a quality pre-school program for 15 years, but in the last five years they switched the content to a rigorous kindergarten readiness program. They also target children from families with low incomes. It took a couple of years to see results, and now almost all of the delayed kids have caught up to grade level and the average kids are up to one to one and a half years ahead when they enter kindergarten. *By the end of kindergarten, approximately 95 percent of students can read.*

Professional Development**.** Instructional improvement takes an enormous amount of professional development. One of the budgetary decisions that Rosalia staff made was to make professional development a priority by providing almost unlimited resources for training. They cut back on maintenance, food service, and secretarial staffing to fund ongoing professional development at a high level. They attend workshops, work together to become familiar with the

WASL, schedule time together to work on how they can improve in targeted content areas, and build teacher leaders. The state pays for two Learning Improvement Days (LID) per teacher per year, but since Rosalia is a small district they cannot afford additional days. (Larger district have 10-15 days paid by local levy dollars.) The LID days take place before school starts and are led by school and district administration. The district does provide teachers with one and a half hour early release days every other week. Informally, teachers constantly collaborate. They would like and could use more professional development days.

Strategies for Struggling Students**.** Rosalia staff identified struggling students and decided what they would do to help support their learning. Their elementary strategies include identifying students early, prioritizing resources for grades K-3, and breaking the elementary grades into smaller groups for instruction. They utilize paraprofessionals by treating and training them like teachers and give them the same level of professional development. They break down instruction into small groups of five students for literacy and staff them with trained paraprofessionals. There is an administrative mandate barring paraprofessionals to be used for hanging bulletin boards, and it is enforced.

The intervention strategies are based on a three-tier model. The first tier is the teacher instructing all students from a common curriculum. The second tier concentrates on small groups of one to five students who are given a second dose of the content. The third tier is largely one-on-one with an aide all day long.

Extended day help includes one half hour before school and one half hour after school. During both of these times, teachers are available to help students, primarily via one-to-one tutoring. The after school program is required for students with poor grades. K-8 summer school is fairly limited to students who are at risk of regressing during the summer months.

Technology**.** Rosalia School District had a lot of technology training a few years ago. For two summers in a row, a grant paid for all the teachers in the county to learn the basics and then how to integrate technology into the classroom. The school houses three full computer labs and five to seven computers in every classroom, with everything networked. Software is currently utilized in the classroom, especially for assessment purposes. Unfortunately, because of budgetary limitations, they do not have a replacement cycle.

Lessons Learned**.** Rosalia School District has beaten the odds over the past five years by improving teaching and learning in a focused and informed way.

- They **recalibrated** their goals for student learning by setting student performance goals based on WASL data.
- They **re-engineered** their school by changing the focus to improving student learning, and assigned their time and fiscal resources accordingly.
- They **redesigned** professional development for staff by providing almost unlimited resources for training and collaboration.
- They **reinforced** achievement for struggling students by identifying struggling students early, reducing reading class sizes in the elementary grades, providing extended day learning opportunities, and implementing a three-tier intervention model.

- They **retooled** their technology by integrating technology into the classroom and utilizing assessment tools to inform instruction.

By implementing these core strategies, Rosalia staff and students successfully changed their culture to embrace and support excellence in teaching and learning. Although this district has made progress, it needs to make even more progress and show similar improvements in all the core subject areas and at the elementary, middle and high school levels. For this, they will need additional resources, as they have pretty much exhausted potential for reallocating existing revenues and basing large scale improvement on grant funding.

Kennewick[4]

Kennewick, one of three mid-sized communities in the Tri-Cities area of in southeastern Washington, provides another example of a district that has restructured its schools in order to achieve ambitious student achievement goals. Kennewick serves 15,000 students in thirteen elementary, four middle and three high schools. About one-fourth of its students are ethnic minorities, and about 50 percent are eligible for free and reduced price lunch. In 1995, only 57 percent of its third grade students read at or above the state standard for that level. The school board decided that was not good enough and, with support from the district's leaders, set the goal of educating at least 90 percent of its students to reading proficiency by the end of third grade, a goal similar to that of Madison, Wisconsin. When the federal No Child Left Behind law came along, with its ambitious Adequate Yearly Progress goals, the district simply embraced the somewhat stiffer objectives, viewing them as complementing and reinforcing what the district already was trying to accomplish, rather than opposing them.

At first, principals and teachers were shocked and surprised. They did not feel the goals were attainable. They had been working hard, so what else could they do?

The district, including school board members, began to lead a multiple year awareness and professional development effort. First, the district helped each school – the principal and all faculty – analyze their students' test scores. In the process, each school identified several achievement gaps – the traditional one of lower income students achieving at below average levels, but also new ones. Though differing across schools, all schools identified performance deficiencies in many sub-skill areas. The result was that each school became much more familiar with the "texture" of the achievement profiles of its students, realized there was progress to be made, and became emboldened to think that they could redress many of the achievement shortcomings.

Washington Elementary is a prime example of what happened next. To begin, the school extended learning time for reading instruction, setting aside the two hours from 8:45 to 10:45 every day for intensive reading instruction. Then, the school began to provide teachers with more professional development, both in additional summer classes and during the school year. Third, the school decided that its old reading curriculum was not good enough and adopted a new reading program, that from Open Court. This new reading curriculum emphasized

[4] Taken from Lynn Fielding, Nancy Kerr and Paul Rosier. (2004). *Delivering on the Promise … of the 95% Reading and Math Goals.* Kennewick, WA: The New Foundation Press.

phonemic awareness, phonics and then comprehension, the structured approach many of the school's non-readers needed. Fourth, during the two hours of reading instruction in the morning, the school had every staff member teach reading – core teachers, specialist art, music and PE teachers, and instructional aides. The lowest performing readers were put into smaller classrooms and given the most expert teachers.

After a few years of implementation, when scores improved somewhat but not that much, the school decided that the students most behind needed even more instructional time if they were to catch up and read proficiently by the end of the third grade. So the school began to provide more instructional time to those students, again in small groups, during the afternoon. The students gave up some music and art instruction so they could work more at becoming a proficient reader. The theory was that reading was the cornerstone of good performance in every other subject, including mathematics.

At about the same time, the school and the district adopted the formative testing system of the North West Evaluation Association (NWEA), a group that provides districts and schools with a web-based diagnostic testing system that provides immediate results the next day. These assessment results were used to identify student performance in multiple reading sub-skills. The additional afternoon instruction was then targeted to the specific sub-skills students were struggling to learn. The idea here was to intervene immediately with struggling students so they learned all requisite skills as the year progressed, rather than waiting until the end of the year to see how students were performing.

Simultaneously, the school began to focus on this approach to reaching at all grades. Although the most intense focus in the first couple of years had been at grade 3, the tested grade, the school soon realized that hard work on reading should begin at kindergarten and continue through all grades. This all grade focus, combined with the NWEA diagnostic testing and the extra help in the afternoon focused on specific reading sub-skills began to accelerate achievement gains.

Throughout the entire process, the principal provided strong instructional leadership during these transformational changes. He exposed the teachers to effective reading practices, helped the faculty select a new reading textbook, and captured resources to fund ongoing professional development. During the 2 hours of reading instruction each morning, he would walk through all classrooms in "looking for" observations. He was "looking for" the eight key characteristics of the school's reading program, which gave him specific data to discuss with teachers at a later time.

The result: At Washington, reading scores jumped from having only 70 percent at third grade proficiency in 1996 to 94 percent by 2000 and 98 percent in 2004. Though not quite as high, the district boosted the proportion of third graders reading at proficiency from 57 percent in 1995 to 88 percent in 2004, just shy of its ambitious goal of 90 percent.

The lessons learned from this district and school stories are the following:

- The district and school **recalibrated** their student achievement goals, setting a goal of having at least 90 percent of students finish third grade reading at or above proficiency for that grade.

- They **reengineered** the school, providing two hours of reading instruction to all students every morning, reduced class sizes by having all teachers – including music and PE teachers – teach reading during that time, and provided the best teachers to the lowest performing reading group. Teachers also engaged in ongoing diagnostic testing of their students so they knew exactly what each student did and did not know, and could target instruction to sub-skills needing more attention. It also threw out the old reading program and adopted a brand new reading program, more structured and more relevant to the learning needs of its students.

- They **redesigned** the teacher development system, helping teachers to engage in detailed and sophisticated ongoing formative assessment of their students, and providing additional professional development on more effective reading strategies both during the summer and at different points throughout the school year.

- They **reinforced** the learning of struggling students by providing additional and targeted instruction during the afternoon to all students struggling to learn to proficiency.

- It was led by a principal aggressively engaged in **instructional leadership.**

Though it has made great strides in reading, the district and its schools now need to focus on all the other core content areas, and at the middle and high school levels as well, but it is constrained in these efforts by its limited resources.

Six Steps to Doubling Performance

These powerful stories of actual districts or schools doubling performance show that there is knowledge about how to dramatically improve student performance results – which we summarize by saying doubling performance – and that the schools followed a similar set of six steps after setting new, rigorous performance targets:

1) Analyzed student data to become deeply knowledgeable about performance issues and the nature of the achievement gap. This step underscores the importance of formative assessments. The test score analysis over time included state test results as well.

2) Reviewed evidence on good instruction and effective curriculum. All the schools threw out the old curriculum and replaced it with a different and more rigorous curriculum.

3) Invested heavily in teacher training that included intensive summer institutes and longer teacher work years, as well as resources for trainers and most importantly, instructional coaches in all school.

4) Provided extra helps for struggling students, and with a combination of state funds and federal Title 1 funds provided some combination of tutoring in a 1-1, 1-3, or 1-5 format, and sometimes extended days, summer school, and though not highlighted, English language development for all ELL students.

5) Created smaller classes in early elementary years often lowering class sizes in grades K-3 to 15 citing research from randomized trials

6) Supported by strong leadership around data-based decision making and improving the instructional program, by both the superintendent and principal

However, all the examples were of schools that have boosted student performance in one or two content areas, and at one or maybe two education levels, through a combination of new grants and reallocating extant resources. Now the schools have no more resources to reallocate and they need similar resources to produce similar results in all 5 core content areas and in all elementary, middle and high schools. The evidence-based report is focused on identifying the resources needed by all schools to double student performance in the medium future.

Our Vision of a School that can Double Student Performance

In order to ensure that the following recommendations on school resource needs are effective they need to be woven together into a holistic school vision that is much more productive – doubling student academic achievement – than most schools today. The vision under girding these recommendations includes significant changes from the way most schools currently operate, because the performance improvement goals require quantum improvements. The new school vision is more like the above vignettes, but has the basic education resources to double student performance in all five core content areas and at all school levels.

Doubling student performance cannot be accomplished by working harder in schools as we know them; educators will need to work smarter in re-engineered schools. All current dollars – and any new dollars required to provide the previously recommended resources – will need to be reallocated to this new, more powerful vision of a school.

The vast bulk of educational resources need to be used for more direct services to students, for instructional purposes and for the consistent and ongoing improvement of classroom instruction. The assumption, backed by a wide variety of research, is that better classroom instruction in each core content area is the prime route to improved student performance. Funds need to focus on student needs and surround classrooms with supports that help all teachers dramatically improve their classroom instructional practices. To ensure that young students have minimum academic and social skills so they are ready to learn when they enter school, the new school vision includes preschool and full-day kindergarten, if not for all students, then at least for children entering school from low income backgrounds.

Our new school vision has small classrooms in the early elementary years because learning to read and the basics of numeracy – the foundations for learning everything else – are critically important. The new school vision has class sizes of 25 for grades 4-12. The new school vision then has a comprehensive, integrated and rigorous professional development structure and strategy to help all teachers enhance their instructional practice in quantum leaps. The new school vision also includes intensive extra help strategies so that no student falls behind and any student struggling to learn to standards is provided immediate, intensive help to do so – tutoring in small groups, followed by extended days and summer school if needed.

The new school vision assumes all students will take a common core of rigorous classes, with the goal of taking algebra by the eighth grade and the college preparatory curriculum in high school – the path we believe will prepare Washington's students for college, work in the global market and citizenship.[5] The new school vision includes substantial family outreach and involvement resources. The vision includes funds so that the school can stay up-to-date with computer technology resources and tap the Worldwide Web for instructional materials and even instructional courses – when and if they become available.

It should be clear that this new vision, each element backed by evidence on its effectiveness and used in most examples of school's doubling performance, is very different from typical schools in Washington today. Our proposals take all current school level and instructional resources and reallocates them, plus any new resources, to a proposed set of evidence-based, proven-effective strategies. Some but not many three- and four-year olds experience preschool; we and the Early Learning Advisory Committee support a full preschool program for all three- and four-year olds (whose parents want them), particularly those from lower income families. Full-day kindergarten is not supported by the current school aid program; we support full day kindergarten for all students, beginning with those from lower income families. The typical K-3 classroom today has 25 or more students; we propose 15, based on results from randomized experiments. Classes in grades 4-12 often have 30-35 students; we propose 25 based on best practices.

Many teachers leave Washington's schools because of low salaries and little instructional support; we propose raising salaries where they are behind regional labor markets, linking pay raises more to improved instructional expertise that research shows is linked to value-added student learning gains, and providing intensive instructional support.

Typical professional development is usually a mile wide and an inch deep, with little if any follow through coaching; we propose intensive and ongoing professional development, with two-week summer institutes and coaching in all classrooms to instigate instructional change. Our proposed professional development resources can also be deployed for a strong new teacher induction and mentoring program, so learning how to teach will be structured rather than random.

[5] Having all students take the college prep curriculum in high school is increasingly recognized as the prime way to make students ready for college or the world of work in the 21st century global marketplace (Olson, 2006).

The typical intervention for students not learning to proficiency is a pull out remedial program, with untrained aides often providing the help; we propose the most effective strategy – one-to-one and small group tutoring by certified teachers, as well as academically focused extended day and summer school programs so that instructional time can vary for struggling students but performance standards held constant.

In most schools, guidance counselors, social workers and other pupil support personnel work in isolation with little impact; we propose integrated family/community outreach-pupil support teams stressing those actions parents can take to help their children learn.

For the maximum impact, our resources need to be used to deploy a more effective curriculum program, from too much whole language reading today to a balanced, research-based approach with more phonemic awareness and phonics in the early elementary years, from just basic skills in mathematics today to mathematic concepts with applications to real-world problems, from little science today to science concepts again with applications to real-world issues, and to a stronger approach to U.S history. Our model includes an emphasis on writing and communication, with ample resources for art, music, physical education and advanced work for the gifted, talented and able and ambitious student.

We should note that our new school vision does not propose additional funding for longer school years or longer days for students, except for those who need extended day academic help. It does not include small classes of 20 for students in grades 4-12, as many professional judgment adequacy studies do. The new school vision proposes no assistant principals per se, no deans, and no traditional instructional aides used as teacher helpers. Because the model excludes many high cost proposals and practices seen elsewhere, and our new vision is to have smaller school units, these "support" and non-instructionally oriented resources are not needed.

Over time, we seek to have a larger number of smaller, more personalized, school units – no larger than 650 students – at all levels in the education system. This recommendation is justified by a wide range of research showing that smaller schools work better for all children, especially at the secondary level, and especially for lower income, minority and English language learning students.

Using a car metaphor, we are designing a "hybrid" car which is much more effective, efficient and environmentally friendly than typical cars today. We would like a "hover mobile" running on hydrogen, but that is not possible in the near term.

So our new school vision is quite different from many schools in Washington today, though it may not be as technologically radical as some would want. But we do not yet have evidence for a school vision laden with technology that would be better. We believe our vision could "morph" into such an even stronger vision once that is possible, and we have provided the technology resources to position schools to do so.

<u>Evidence underlying this vision and these ambitious student performance expectations</u>. To those who wonder whether there is a knowledge base for improving student achievement so dramatically, we would direct their inquiry to research – largely from cognitive psychology –

during the past two decades. This research has shown us that virtually all students, except those with significant disabilities, can learn complex materials, and be educated to think, understand, problem solve and communicate in written and oral form effectively. This research was nicely summarized in a recent book from the National Academy of Sciences (Bransford, Brown & Cocking, 1999), which includes chapters not only on student learning, but also on how that knowledge can be translated into curriculum standards for students and professional development for teachers.

These general findings have been articulated into detailed summaries of the instructional practices most effective in teaching students mathematics (Donovan & Bransford, 2005b), science (Donovan & Bransford, 2005c) and history (Donovan & Bransford, 2005a) and join the other many syntheses of effective reading practices (e.g., Cunningham & Allington, 1994). One finding from that research is that students cannot learn to understanding and problem solving levels, unless the curriculum, instructional and testing processes are redesigned to make those demands of all students.

Thus, research shows not only that the vast bulk of students from lower income, minority or English language learning backgrounds can learn complex materials, but also that these students often are the prime beneficiaries of new instructional programs that expect them to learn to those levels, and provide the extra assistance some might need to perform to those levels. Put a different way, although there is a low achievement/high poverty link and a minority/non-minority achievement gap today, it does not have to be that way, or at least the linkages and gaps can be much less than they are. In sum, we believe that the country, Washington and the professional education communities have the professional knowledge base to produce the quantum improvements in student learning, including improvements for lower income and English language learning students, that would be allowed by the adequate funding models we are proposing.

Finally, to those who would quote the education production function studies as concluding that money does not make a difference, we quote from the 3rd edition of our school finance text

> The most often cited research in this field [economic production functions] is the synthesis work of Eric Hanushek (1981, 1986, 1989, 1997). Hanushek has consistently argued that there does not appear to be a systematic relationship between the level of funding and student outcomes (see also Hanushek, 2002, on the class size debate).
>
> Hanushek has now analyzed 90 different studies, with 377 separate production function equations over a 20-year time period. In his 1997 publication, he continued to argue that "These results have a simple interpretation: There is no strong or consistent relationship between school resources and student performance. In other words, there is little reason to be confident that simply adding more resources to schools as currently constituted will yield performance gains among students" (Hanushek, 1997: 148).
>
> Hanushek essentially divided the 377 different findings into two major categories: those indicating a positive and those indicating a negative relationship. He compared the

> numbers in each category and found more negative than positive findings. He then concluded that the variation in findings was such that a systematic relationship between money and outcomes had not yet been identified…
>
> Others have analyzed the same studies as Hanushek and reached opposite conclusions. Hedges, Laine and Greenwald (1994a, 1994b; see also Laine, Greenwald & Hedges, 1996; and Greenwald, Hedges & Laine, 1996a, 1996b) concluded that in fact, money can make a difference. They calculated the effect size of the different studies and, rather than counting the number of positive and negative findings, calculated an average effect size; their results produce a significantly positive effect size. The larger effects of the "positive" studies are greater than the smaller effects of the "negative" studies. Relying on this and other evidence, Hedges Laine, and Greenwald, (1994a) concluded that school spending and achievement are positively related. In his rejoinder, Hanushek (1994) argued that while there is evidence that the relationship exists, there is not evidence of a strong or systematic relationship. We side more with Hedges, Laine and Greenwald than with Hanushek, viewing the "effect size" as the way to summarize across studies.

We would, however, note that beyond this more arcane debate about the conclusions of economic production function studies, all analysts conclude that *it is the way money is spent that will make the largest and critical differences*. That is why the most recent National Research Council's book on school finance is entitled *Making Money Matter* (Ladd & Hansen, 1999). And, that is why our report's recommendations, if funded and implemented, would redirect school resources to those strategies for which there is evidence that they do work. As will be clear, each and every one of the proposals is backed by evidence on its effectiveness. If current and new funds in schools were used to implement the these recommendations, greater student performance should result – WASL scores should rise – once again showing that it is the way money is used in schools that makes the impact on student performance real and measurable.

Table 1
Recommendations for Adequate Resources for
Prototypical Washington Elementary, Middle and High Schools

School Element	Elementary Schools	Middle Schools	High Schools
School Characteristics			
School configuration	K-5	6-8	9-12
Prototypic school size	432	450	600
Class size	K-3: 15 4-5: 25	6-8: 25	9-12: 25
Full-day kindergarten	Yes	NA	NA
Number of teacher work days	190 state funded teacher work days; an increase of 8 days	190 state funded teacher work days; an increase of 8 days	190 state funded teacher work days; an increase of 8 days
% Disabled	12.3 %	12.3 %	12.3 %
% Poverty (free & reduced lunch)	36 %	36 %	36 %
% ELL	7.1 %	7.1 %	7.1 %
% Minority	29 %	29 %	29 %
Personnel Resources			
1. Core teachers	24	18	24
2. Specialist teachers	20% more: 4.8	20% more: 3.6	33% more: 8.0
3. Instructional Facilitators/Mentors	2.2	2.25	3.0
4. Tutors for struggling students	one for every 100 poverty students: 1.55	one for every 100 poverty students: 1.62	one for every 100 poverty students: 2.16
5. Teachers for ELL students	An additional 1.00 teachers for every 100 ELL students who 0.3	An additional 1.00 teachers for every 100 ELL students 0.31	An additional 1.00 teachers for every 100 ELL students 0.42
6. Extended Day	1.3	1.35	1.8
7. Summer School	1.3	1.35	1.8

Table 1 (Continued)
Recommendations for Adequate Resources for
Prototypical Washington Elementary, Middle and High Schools

School Element	Elementary Schools	**Middle Schools**	**High Schools**
School Characteristics			
8. Alternative Schools	NA	NA	1 AP plus 1 teacher for every 8 ALE students
9. Students with disabilities	93 % of Base funding capped at 12.7 % of students	93 % of Base funding capped at 12.7 % of students	93 % of Base funding capped at 12.7 % of students
9. Very high cost disabled students	Enhance and streamline Safety Net	Enhance and streamline Safety Net	Enhance and streamline Safety Net
10. Teachers for gifted students	$25/student	$25/student	$25/student
11. Career/Technical Education	NA	NA	To be determined
12. Substitutes	10 days per teacher	10 days per teacher	10 days per teacher
13. Pupil support staff	1 for every 100 poverty students: 1.55	1 for every 100 poverty students plus 1.0 guidance/250 students 3.42 total	1 for every 100 poverty students plus 1.0 guidance/250 students 4.56 total
14. Non-Instructional Aides	2.0	2.0	3.0
15. Librarians/media specialists	1.0	1.0	1.0 librarian 1.0 Library technician
16. Principal	1	1	1
17. School Site Secretary	2.0 Secretaries	2.0 Secretaries	3.0 Secretaries

Table 1 (Continued)
Recommendations for Adequate Resources for
Prototypical Washington Elementary, Middle and High Schools

School Element	Elementary Schools	**Middle Schools**	**High Schools**
Dollar per Pupil Resources			
18. Professional development	Included above: Instructional facilitators Planning & prep time 10 summer days Additional: $100/pupil for other PD expenses – trainers, conferences, travel, etc.	Included above: Instructional facilitators Planning & prep time 10 summer days Additional: $100/pupil for other PD expenses – trainers, conferences, travel, etc.	Included above: Instructional facilitators Planning & prep time 10 summer days Additional: $100/pupil for other PD expenses – trainers, conferences, travel, etc.
19. Technology	$250/pupil	$250/pupil	$250/pupil
20. Instructional materials, equipment, including textbooks	$140/pupil	$140/pupil	$175/pupil
21. Student Activities	$200/pupil	$200/pupil	$200/pupil
Central Office Expenditures			
22. Central Administration			
23. Operations and Maintenance	$609 per pupil	$609 per pupil	$609 per pupil

Table 2
Summary of Personnel By Prototype of Various Sizes

Personnel Resource Category	Elementary			Middle			High School		
School Enrollment	**108**	**216**	**432**	**150**	**300**	**450**	**150**	**300**	**600**
Core Teachers	6.0	12.0	24.0	6. 0	12.0	18.0	6.0	12.0	24.0
Specialist Teachers	1.2	2.4	4.8	1.2	2.4	3.6	2.0	4.0	8.0
Instructional Facilitators	0.55	1.1	2.2	0.75	1.5	2.25	0.75	1.5	3.0
Teacher Tutors (state avg.)	0.39	0.78	1.55	0.54	1.08	1.62	0.5 4	1.08	2.16
ELL Teachers	0.09	0.20	0.4	0.13	0.27	0.41	0.13	0.28	0.56
Extended Day Program	0.33	0.65	1.3	0.45	0.90	1.35	0.45	0.9	1.8
Summer School	0.33	0.65	1.3	0.45	0.90	1.125	0.45	0.9	1.8
Special Education	93% of Base Funding plus an enhancement of the Safety Net								
Substitutes	10 days for each ADM generated teacher positions at $___/day plus ___%								
Aides	0.5	1.00	2.0	0.67	1.33	2.0	0.75	1.5	3.0
Pupil Support	0.39	0.78	1.55	1.14	2.28	3.42	1.14	2.28	4.56
Librarian	0.25	0.5	1.0	0.3	0.67	1.0	0.25	0.5	1.0
media technician	0.0	0	0	0	0	0	0.25	0.5	1.0
School Administration	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Secretary/	1.0	1.0	2.0	1.0	1.0	2.0	1.0	1.5	3.0